UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 3rd Ed, 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1:19, 3rd Ed, 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	Component Recognition
CCN:	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
Complementary CCN:	N/A
Product:	Power Supply
Model:	TPS4500-92/184-xxx (x = A-Z, 0-9 or blank)
Rating:	Input: 3 PHASE ~ 400 - 480 VAC (3W+PE) 9A / PHASE, 50 - 60 HZ Input Power: 5300W MAX. DC OUTPUT POWER: 4600W MAX. 57-100 VDC @ 50A MAX. 114-200 VDC @ 25A MAX.
Applicant Name and Address:	TDK-LAMBDA AMERICAS INC 1669 BRANDYWINE AVENUE, SUITE A CHULA VISTA CA 91911 UNITED STATES

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared By: Teresa Erhart / Project Handler Reviewed By: Gregory Ray / Reviewer

Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

A. Authorization - The Authorization page may include additional Factory Identification Code markings.

B. Generic Inspection Instructions -

i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.

ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.

iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

Product Description

The equipment is a Class I, 3-phase power supply intended for building-in as a component used in information technology equipment.

The equipment provides basic and reinforced insulation between Primary and Protective Earth (PE) and Primary and Secondary Circuits respectively.

Model Differences

N/A

Test Item Particulars	
Product group	built-in component
Classification of use by	Instructed person
Supply Connection	AC Mains
Supply tolerance	+10%/-10%
Supply connection – type	Provided in the end system
Considered current rating of protective device	10 A; Location: equipment
Equipment mobility	for building-in
Over voltage category (OVC)	OVC II
Class of equipment	Class I
Special installation location	N/A
Pollution degree (PD)	PD 2
Manufacturer’s specified Tma (°C)	50°C: 4600 Wmax 60°C: 3680 Wmax 70°C: 2530 Wmax
IP protection class	IPX0
Power systems	IT - 400 - 480 V L-L
Altitude during operation (m)	4000 m
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	3.72Kg

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 50°C: 4600 Wmax, 60°C: 3680 Wmax, 70°C: 2530 Wmax
- The product is intended for use on the following power systems : IT
- Considered current rating of protective device as part of the building installation (A) : 20
- Mains supply tolerance (%) or absolute mains supply : +10%/-10%
- The equipment disconnect device is considered to be : Considered in the end product
- The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual

Engineering Conditions of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. When installed in an end-product, consideration must be given to the following:

- The following product-line tests are conducted for this product : Electric Strength
- The end-product Electric Strength Test is to be based upon a maximum working voltage of : Dielectric Test values conducted at 4000Vpk for basic and 6000Vpk for reinforced.
- The following output circuits are at ES3 energy levels : All outputs
- The following output circuits are at PS3 energy levels : All outputs
- The maximum investigated branch circuit rating is : To be considered in the end product.
- The investigated Pollution Degree is : 2
- Proper bonding to the end-product main protective earthing termination is : Required
- An investigation of the protective bonding terminals has : Not been conducted and must be performed as part of the end product investigation.
- The following end-product enclosures are required : Electrical, Fire, Mechanical
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJY2 insulation system with the indicated rating greater than Class A (105°C) : L1, L2, L3, L4, L5, L6, L7, L8, L9, L11, L12, T5, T300, T301, T302, T303, T305 (Class F), T301 (Class B)
- The equipment is suitable for direct connection to : Suitability for direct connection to the AC mains supply must be determined as part of the end product investigation.
- The power supply was evaluated to be used at altitudes up to : 4,000 m
- Suitable enclosure, grounding connection and disconnection device shall be provided by the end product. The power supply has not been evaluated as the main bonding/ earthing for the end product.
- The input wires of the power supply provide basic insulation only. When installing into the end system, care shall be taken that these wires must be properly isolated from the secondary output busbars of this equipment.
- The power supply terminals and/or connectors are not investigated for field wiring.

Additional Information

N/A

Additional Standards

The product fulfills the requirements of: CSA/UL 62368-1:2019

Markings and Instructions

Clause Title	Marking or Instruction Details

Equipment identification marking – Manufacturer identification	Listee's or Recognized Company's name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	Input Ratings (voltage, frequency/dc, current/power) Output Ratings (voltage, frequency/dc, current/power)
Fuses – replaceable by skilled person	(component ID:F1, F2, F3), Ratings (10A,600V) and (symbol of required characteristics) located on or adjacent to fuse or fuseholder or in service manual.
Special Instructions to UL Representative N/A	